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(FILE 'HOME' ENTERED AT 14:19:56 ON 20 AUG 2001)

FILE 'HCAPLUS' ENTERED AT 14:20:56 ON 20 AUG 2001
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L1 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 2000:314426 HCAPLUS

DOCUMENT NUMBER: 132:321020

TITLE: Method for producing L-arginine

INVENTOR(S): **Suga, Mikiko**; Kuwabara, Yoko; Hashiguchi, Kenichi; Ito, Hisao; Nakamatsu, Tsuyoshi; Kurahashi, Osamu

PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan

SOURCE: Eur. Pat. Appl., 20 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

INT. PATENT CLASSIF.:

MAIN: C12N001-20

SECONDARY: C12P013-10

ADDITIONAL: C12N015-52

INDEX: C12N001-20, C12R001-15

CLASSIFICATION: 16-5 (Fermentation and Bioindustrial Chemistry)

Section cross-reference(s): 3, 10

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 999267	A1	20000510	EP 1999-120934	19991102
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000197490	A2	20000718	JP 1999-271204	19990924
CN 1258736	A	20000705	CN 1999-125154	19991102
PRIORITY APPLN. INFO.:			JP 1998-312301	A 19981102
			JP 1999-271204	A 19990924

ABSTRACT:

A method for improved prodn of L-arginine by genetic enhancement of arginine producing coryneform bacteria is disclosed. Specifically, the activity of intracellular argininosuccinate synthase is enhanced by increasing the copy no. of the argG gene (derived from a coryneform bacterium) which codes for argininosuccinate synthase. Thus, a Corynebacterium glutamicum strain so transformed demonstrated a four fold increase in arginine concns. over the parent wild type when both are cultured in the same fermn. medium. Alternatively, L-arginine prodn is enhanced by mutating the promoter sequence which controls expression of the argG gene. In this case, Corynebacterium glutamicum strains with mutated promoters demonstrated a 2-3 fold increase in arginine concns. over the parent wild type when both are cultured in a fermn. medium.

SUPPL. TERM: Corynebacterium arginine prodn argG copy number; mutated promotor Coryneform arginine prodn

INDEX TERM: Gene, microbial

ROLE: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPR (Biological process); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(argG; enhanced L-arginine prodn. by genetically engineered Coryneform strains)

INDEX TERM: Corynebacterium glutamicum

Coryneform bacteria

Fermentation

Genetic engineering

(enhanced L-arginine prodn. by genetically engineered Coryneform strains)

INDEX TERM: Promoter (genetic element)

ROLE: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPR (Biological process); BIOL

(Biological study); OCCU (Occurrence); PROC (Process)
 (enhanced L-arginine prodn. by genetically engineered
 Coryneform strains)

INDEX TERM: Plasmids
 (pargG; enhanced L-arginine prodn. by genetically
 engineered Coryneform strains)

INDEX TERM: 9023-58-9, Argininosuccinate synthase
 ROLE: BAC (Biological activity or effector, except adverse);
 BOC (Biological occurrence); BPR (Biological process); BIOL
 (Biological study); OCCU (Occurrence); PROC (Process)
 (enhanced L-arginine prodn. by genetically engineered
 Coryneform strains)

INDEX TERM: 74-79-3P, Arginine, preparation
 ROLE: BMF (Bioindustrial manufacture); BPN (Biosynthetic
 preparation); BIOL (Biological study); PREP (Preparation)
 (enhanced L-arginine prodn. by genetically engineered
 Coryneform strains)

INDEX TERM: 50-99-7, Glucose, biological studies
 ROLE: BPR (Biological process); BIOL (Biological study);
 PROC (Process)
 (enhanced L-arginine prodn. by genetically engineered
 Coryneform strains)

INDEX TERM: 70-26-8P, Ornithine 372-75-8P, Citrulline
 ROLE: BYP (Byproduct); PREP (Preparation)
 (enhanced L-arginine prodn. by genetically engineered
 Coryneform strains)

REFERENCE COUNT: 5
 REFERENCE(S): (1) Anon; DATABASE GENE BANK ` Online 1997
 (2) Kyowa Hakko Kogyo Kk; EP 0136359 A 1985 HCAPLUS
 (3) Kyowa Hakko Kogyo Kk; EP 0259858 A 1988 HCAPLUS
 (4) Kyowa Hakko Kogyo Kk; EP 0261627 A 1988 HCAPLUS
 (5) Kyowa Hakko Kogyo Kk; EP 0332233 A 1989 HCAPLUS

L1 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 2000:227797 HCAPLUS
 DOCUMENT NUMBER: 132:275135
 TITLE: Process for constructing amino acid-producing
 coryneform bacterium and process for producing amino
 acid by fermentation method with the use of the thus
 constructed amino acid-producing bacterium

INVENTOR(S): Asakura, Yoko; Nakamura, Jun; Kanno, Sohei; Suga,
 Mikiko; Kimura, Eiichiro; Ito, Hisao; Matsui,
 Kazuhiko; Ohsumi, Tsuyoshi; Nakamatsu, Tsuyoshi;
 Kurahashi, Osamu

PATENT ASSIGNEE(S): Ajinomoto Co., inc., Japan
 SOURCE: PCT Int. Appl., 98 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese

INT. PATENT CLASSIF.:
 MAIN: C12N015-67
 SECONDARY: C12N015-52; C12P013-04; C12P013-14; C12P019-38;
 C12N009-02; C12N009-10; C12N001-21

CLASSIFICATION: 3-1 (Biochemical Genetics)
 Section cross-reference(s): 10, 16

FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000018935	A1	20000406	WO 1999-JP5175	19990922
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD,				

MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,
 SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
 DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 AU 9957578 A1 20000417 AU 1999-57578 19990922
 EP 1033407 A1 20000906 EP 1999-944770 19990922
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, FI
 BR 9909409 A 20001121 BR 1999-9409 19990922
 PRIORITY APPLN. INFO.: JP 1998-271786 A 19980925
 JP 1998-271787 A 19980925
 WO 1999-JP5175 W 19990922

ABSTRACT:

Described is a process for prepg. a coryneform bacterium mutant having an improved amino acid- or nucleic acid-productivity, by mutating or genetically recombining the promoter sequence of an amino acid or nucleic acid biosynthesis gene on the chromosome of the coryneform bacterium so as to bring it close to the consensus sequence. The resultant mutants are then cultured for producing the amino acid or the nucleic acid at a high yield. By using this process, the expression of a target gene can be enhanced without using plasmid vectors. Demonstrated were the substitution mutation at CCGTCA, TTGTCA, TTGACA, or TTGCCA of the -35 region and/or at TATAAT or ATAAT of the -10 region of the glutamate dehydrogenase (GDH) gene *gdh*, selection of the coryneform bacterium mutant by using 4-fluoroglutamic acid, and use of the coryneform bacterium mutant for the prodn. oligonucleotide L-glutamic acid. Mutation of the promoter of (1) gene *gltA* for citrate synthase (CS); (2) gene *icd* for isocitrate dehydrogenase (ICDH); (3) gene *pdhA* for pyruvate dehydrogenase (PDH) subunit A; and (4) gene *argG* for argininosuccinate synthetase; resp., was also demonstrated.

SUPPL. TERM: coryneform bacteria promoter mutation amino acid fermn;
 glutamate dehydrogenase gene promoter mutation; citrate
 synthase gene promoter mutation; isocitrate dehydrogenase
 gene promoter mutation; pyruvate dehydrogenase gene promoter
 mutation; argininosuccinate synthetase gene promoter
 mutation
 INDEX TERM: Coryneform bacteria
 Fermentation
 (process for constructing amino acid-producing coryneform
 bacterium and process for producing amino acid by fermn.
 method with use of thus constructed amino acid-producing
 bacterium)
 INDEX TERM: Amino acids, preparation
 Nucleic acids
 ROLE: BPN (Biosynthetic preparation); BIOL (Biological
 study); PREP (Preparation)
 (process for constructing amino acid-producing coryneform
 bacterium and process for producing amino acid by fermn.
 method with use of thus constructed amino acid-producing
 bacterium)
 INDEX TERM: Promoter (genetic element)
 ROLE: BSU (Biological study, unclassified); BUU (Biological
 use, unclassified); BIOL (Biological study); USES (Uses)
 (process for constructing amino acid-producing coryneform
 bacterium and process for producing amino acid by fermn.
 method with use of thus constructed amino acid-producing
 bacterium)
 INDEX TERM: 210245-73-1 263351-99-1
 ROLE: BPR (Biological process); BUU (Biological use,
 unclassified); BIOL (Biological study); PROC (Process); USES
 (Uses)
 (-10 region of citrate synthase gene; process for

constructing amino acid-producing coryneform bacterium and process for producing amino acid by fermn. method with use of thus constructed amino acid-producing bacterium)

INDEX TERM: 111283-40-0 156766-03-9
 ROLE: BPR (Biological process); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
 (-10 region of glutamate dehydrogenase gene; process for constructing amino acid-producing coryneform bacterium and process for producing amino acid by fermn. method with use of thus constructed amino acid-producing bacterium)

INDEX TERM: 222160-22-7
 ROLE: BPR (Biological process); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
 (-35 region of argininosuccinate synthetase gene; process for constructing amino acid-producing coryneform bacterium and process for producing amino acid by fermn. method with use of thus constructed amino acid-producing bacterium)

INDEX TERM: 263351-98-0
 ROLE: BPR (Biological process); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
 (-35 region of citrate synthase gene; process for constructing amino acid-producing coryneform bacterium and process for producing amino acid by fermn. method with use of thus constructed amino acid-producing bacterium)

INDEX TERM: 87733-55-9 174228-92-3 222160-20-5 263351-96-8 263351-97-9
 ROLE: BPR (Biological process); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
 (-35 region of glutamate dehydrogenase gene; process for constructing amino acid-producing coryneform bacterium and process for producing amino acid by fermn. method with use of thus constructed amino acid-producing bacterium)

INDEX TERM: 9001-58-5, Isocitrate dehydrogenase 9014-20-4, Pyruvate dehydrogenase 9023-58-9, Argininosuccinate synthetase 9027-96-7, Citrate synthase 9029-11-2, Glutamate dehydrogenase
 ROLE: BSU (Biological study, unclassified); BIOL (Biological study)
 (mutation in promoter of gene for; process for constructing amino acid-producing coryneform bacterium and process for producing amino acid by fermn. method with use of thus constructed amino acid-producing bacterium)

INDEX TERM: 56-86-0P, L-Glutamic acid, preparation 74-79-3P, Arginine, preparation
 ROLE: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
 (process for constructing amino acid-producing coryneform bacterium and process for producing amino acid by fermn. method with use of thus constructed amino acid-producing bacterium)

INDEX TERM: 112824-74-5 125757-57-5 222160-17-0 222160-23-8 248580-93-0 263352-00-7 263352-01-8
 ROLE: BPR (Biological process); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES

INVENTOR(S): **Suga, Mikiko**; Sugimoto, Masakazu; Osumi, Tsuyoshi; Nakamatsu, Tsuyoshi; Hibino, Wataru; Ito, Mika

PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan

SOURCE: Eur. Pat. Appl., 27 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

INT. PATENT CLASSIF.:
MAIN: C12N015-53
SECONDARY: C12N009-04; C12P013-06; C12R001-13; C12R001-15
CLASSIFICATION: 16-2 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 3, 7

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 943687	A2	19990922	EP 1999-100324	19990112
EP 943687	A3	20001213		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11266881	A2	19991005	JP 1998-353513	19981211
US 6258573	B1	20010710	US 1998-222786	19981230
PRIORITY APPLN. INFO.:			JP 1998-3751	A 19980112
			JP 1998-353513	A 19981211

ABSTRACT:

Disclosed is a coryneform bacterium having resistance to azaserine or .beta.-(2-thienyl)-DL-alanine and having L-serine productivity. Also, disclosed are D-3-phosphoglycerate dehydrogenase derived from Brevibacterium flavum strain AJ13327 after treatment with the mutagen MNNG, in which feedback inhibition by L-serine is desensitized. The D-3-phosphoglycerate dehydrogenase mutant has resistance to azaserine or .beta.-(2-thienyl)-DL-alanine and has L-serine productivity. The D-3-phosphoglycerate dehydrogenase amino acid sequence has the 325th glutamic acid residue replaced with an amino acid other than glutamic acid. Cultivating a coryneform bacterium harboring a recombinant DNA contg. the mutant serA gene in a medium to allow accumulation of L-serine in the medium yields 12 g serine/mL, markedly higher than the 5.0 g/mL produced by coryneform bacteria contg. the wild-type serA gene.

SUPPL. TERM: serine fermn Brevibacterium phosphoglycerate dehydrogenase mutation; sequence phosphoglycerate dehydrogenase gene serA mutation Brevibacterium

INDEX TERM: DNA sequences
(of 3-phosphoglycerate dehydrogenase mutant gene serA with reduced feedback inhibition in Brevibacterium flavum)

INDEX TERM: Protein sequences
(of 3-phosphoglycerate dehydrogenase mutant with reduced feedback inhibition in Brevibacterium flavum)

INDEX TERM: Corynebacterium glutamicum
Coryneform bacteria
Fermentation
Genetic engineering
(producing L-serine by fermn. with genetically engineered corynebacteria)

INDEX TERM: Gene, microbial
ROLE: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(serA; producing L-serine by fermn. with genetically engineered corynebacteria)

INDEX TERM: 233595-31-8
ROLE: BPR (Biological process); CAT (Catalyst use); PRP (Properties); BIOL (Biological study); PROC (Process); USES

(Uses)
(amino acid sequence; producing L-serine by fermn. with
genetically engineered corynebacteria)

INDEX TERM: 233595-30-7
ROLE: BSU (Biological study, unclassified); PRP
(Properties); BIOL (Biological study)
(nucleotide sequence; producing L-serine by fermn. with
genetically engineered corynebacteria)

INDEX TERM: 56-45-1P, L-Serine, preparation
ROLE: BMF (Bioindustrial manufacture); BIOL (Biological
study); PREP (Preparation)
(producing L-serine by fermn. with genetically engineered
corynebacteria)

INDEX TERM: 9075-29-0, 3-Phosphoglycerate dehydrogenase
ROLE: BPR (Biological process); CAT (Catalyst use); PRP
(Properties); BIOL (Biological study); PROC (Process); USES
(Uses)
(producing L-serine by fermn. with genetically engineered
corynebacteria)

INDEX TERM: 115-02-6, Azaserine 32595-59-8, .beta.-(2-Thienyl)-Serine
ROLE: BAC (Biological activity or effector, except adverse);
BIOL (Biological study)
(resistance to; producing L-serine by fermn. with
genetically engineered corynebacteria)

INDEX TERM: 244180-32-3, PN: EP943687 SEQID: 1 unclaimed DNA
244180-54-9, PN: EP943687 SEQID: 3 unclaimed DNA
244180-57-2, PN: EP943687 SEQID: 4 unclaimed DNA
244180-59-4, PN: EP943687 SEQID: 5 unclaimed DNA
244180-61-8, PN: EP943687 SEQID: 6 unclaimed DNA
244180-62-9, PN: EP943687 SEQID: 7 unclaimed DNA
244180-63-0, PN: EP943687 SEQID: 8 unclaimed DNA
244180-64-1, PN: EP943687 SEQID: 9 unclaimed DNA
244180-66-3, PN: EP943687 SEQID: 10 unclaimed DNA
ROLE: PRP (Properties)
(unclaimed nucleotide sequence; producing L-serine by
fermn. with genetically engineered corynebacteria)

INDEX TERM: 244180-33-4, PN: EP943687 SEQID: 2 unclaimed protein
ROLE: PRP (Properties)
(unclaimed protein sequence; producing L-serine by fermn.
with genetically engineered corynebacteria)

L1 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1999:482064 HCAPLUS

DOCUMENT NUMBER: 131:126393

TITLE: Enhanced L-serine fermentation by genetically
engineered Coryneform bacteria

INVENTOR(S): **Suga, Mikiko**; Sugimoto, Masakazu; Osumi,
Tsuyoshi; Nakamatsu, Tsuyoshi; Hibino, Wataru; Ito,
Mika

PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan

SOURCE: Eur. Pat. Appl., 33 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

INT. PATENT CLASSIF.:

MAIN: C12N015-53

SECONDARY: C12N009-04; C12P013-06; C12R001-15; C12R001-13

CLASSIFICATION: 3-2 (Biochemical Genetics)

Section cross-reference(s): 7, 10, 16

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 931833	A2	19990728	EP 1999-100325	19990112
EP 931833	A3	20001213		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11253187	A2	19990921	JP 1998-353521	19981211
US 6037154	A	20000314	US 1998-222817	19981230
CN 1227264	A	19990901	CN 1999-100441	19990112
PRIORITY APPLN. INFO.:			JP 1998-3751	A 19980112
			JP 1998-353521	A 19981211

ABSTRACT:

The invention relates to a microorganism that converts a sugar into L-serine and to an industrially advantageous method of accumulating L-serine in a culture medium by utilizing the ability of the microorganism to convert the sugar into L-serine. Thus, the invention provides a Coryneform bacteria having L-serine productivity (a deficiency in L-serine decomp. activity, resistance to L-serine analogs, or a combination of both). Specifically, said bacterium has an enhanced activity of at least one of phosphoserine phosphatase and phosphoserine transaminase, and preferably further having introduced therein a gene coding for D-3-phosphoglycerate dehydrogenase in which feedback inhibition by L-serine is desensitized, thereby allowing L-serine to accumulate in the medium.

SUPPL. TERM: serine fermn genetic engineering Coryneform bacteria;
phosphoserine phosphatase transaminase genetic engineering
Coryneform bacteria; phosphoglycerate dehydrogenase gene
genetic engineering Coryneform bacteria

INDEX TERM: Gene, microbial
ROLE: BUU (Biological use, unclassified); BIOL (Biological
study); USES (Uses)
(D-3-phosphoglycerate dehydrogenase; enhanced L-serine
fermn. by genetically engineered Coryneform bacteria
comprising a gene encoding D-3-phosphoglycerate
dehydrogenase)

INDEX TERM: Corynebacterium glutamicum
Coryneform bacteria
Fermentation
Genetic engineering
Microbacterium
(enhanced L-serine fermn. by genetically engineered
Coryneform bacteria)

INDEX TERM: 233595-31-8P
ROLE: BPN (Biosynthetic preparation); BIOL (Biological
study); PREP (Preparation)
(amino acid sequence; enhanced L-serine fermn. by
genetically engineered Coryneform bacteria)

INDEX TERM: 56-45-1P, L-Serine, preparation
ROLE: BPN (Biosynthetic preparation); BIOL (Biological
study); PREP (Preparation)
(enhanced L-serine fermn. by genetically engineered
Coryneform bacteria)

INDEX TERM: 9075-29-0P, D-3-Phosphoglycerate dehydrogenase
ROLE: BOC (Biological occurrence); BPN (Biosynthetic
preparation); CAT (Catalyst use); BIOL (Biological study);
OCCU (Occurrence); PREP (Preparation); USES (Uses)
(enhanced L-serine fermn. by genetically engineered
Coryneform bacteria comprising a gene encoding
D-3-phosphoglycerate dehydrogenase)

INDEX TERM: 9025-73-4P, Phosphoserine phosphatase 9030-90-4P,
Aminotransferase, phosphoserine
ROLE: BOC (Biological occurrence); BPN (Biosynthetic
preparation); CAT (Catalyst use); BIOL (Biological study);
OCCU (Occurrence); PREP (Preparation); USES (Uses)
(enhanced activity of; enhanced L-serine fermn. by
genetically engineered Coryneform bacteria)

INDEX TERM:

233595-30-7P

ROLE: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence; enhanced L-serine fermn. by genetically engineered Coryneform bacteria)



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1	CRFL	6
2	SRNT	26

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